

Determination of the thermal short time stability of polymers by fast scanning calorimetry

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Thermogravimetric analysis (TGA) is a standard technique to measure the thermal stability of polymeric materials. This technique is not sensitive for degradation steps which are not related to mass loss. However, such reactions can significantly influence the mechanical behavior of material. In this contribution we introduce the technique of stability estimation by crystallization analysis (SECA) and pseudo TGA which uses differential scanning calorimetry (DSC). SECA measures the influence of decomposition on crystallization kinetics. This technique is very sensitive to decomposition. Using fast scanning calorimetry, SECA determines the short time thermal stability of semi-crystalline polymers. This property is essential for fast polymer processing like selective laser sintering or welding [1].

[1] J.E.K. Schawe, St. Ziegelmeier, *Thermochimica Acta* **623** (2016) 80–85.